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U. S. Department of Agriculture
Anytime, week of Mar. 19.

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IF THE CORN BORER COMES
(Uninfested Corn States)

NOT FOR PUBLICATION

ANNOUNCEMENT: A difficulty which farmers of this region will face IF THE CORN BORER COMES to our cornfields is that the insect has more disguises than Old Sleuth himself, and takes advantage of every instance of human carelessness to slip past the quarantine lines into new territory. For today's radio contribution to the information of corn growers concerning the borer, Station _____ has secured from a specialist of the U. S. Department of Agriculture a word-picture of the form that the insect pest takes just now in its winter lairs, explanations of how to distinguish it from similar pests, and of methods employed to keep it from spreading this year to areas at present uninfested.

Out in the fields of stubble or stalks and in the corn stalks, cobs, and ears about the barnyards and feed lots in corn borer infested regions, the vanguard of the 1928 army of corn borer vandals has camped through the winter.

The individual members of this army at this time of year are fully grown caterpillars, each nearly an inch long and one-eighth of an inch thick. Their heads are dark brown or black. Colors of the upper surfaces of their bodies range from light brown to dark brown and to pink. Each division of a borer's body bears a row of small dark brown spots, and lengthwise of the body extend several dark brown or pink lines. The under side of the body is flesh colored.

These guerillas of the insect tribe have spent the winter in tunnels within corn stalks, corn cobs, or corn stubble. Small holes, usually plugged with the castings of the borer, appear on the surface of the plant to betray the entrances to the tunnels. Split open a stalk, a piece of stubble, or an ear bearing the tell-tale holes and almost invariably borers will be found.

Each of the borers surviving the spring clean-up will become a moth next June. The average moth will lay some 400 eggs which will hatch into borers. About 60 of each 400 will enter corn plants to join the myriads of borers which will take toll of this year's crop.

Today we'll describe for Station _____'s listeners some other insect pests which sometimes are confused with the corn borer, and cause corn borer "scares."

The corn ear worm is often mistaken for the borer because it is often seen in the ears of corn. This insect is also known as the cotton bollworm, tomato fruit worm, and tobacco bud worm. It is not, however, a true boring insect, and usually confines its damage to the silks and kernels of the ear, whereas the corn borer not only feeds habitually upon the silks and kernels, but also bores into the cob.

Unlike the corn borer, the corn earworm does not bore into the stalks, although if the ears have not developed on young plants, earworms often feed upon the leaves and in the growing tip or "bud" of the plant. This injury sometimes causes tassels to break over in much the same way that borer tunneling does. Close examination will show that stems of tassels broken over by ear worm damage have not been tunneled. Corn borers cause breaking over of tassels by tunneling the stems.

During the late fall, winter, and early spring the corn earworm is never present in ears of corn or in the stalks, whereas the corn borer may commonly be found in ears and stalks of corn at these times in areas where the insect is numerous.

The corn ear worm is larger than the corn borer, being about 1-1/2 inches long when fully grown. It varies greatly in color, ranging from tints of green, pink, rose, yellow, and brown to almost black. It may be beautifully striped with or spotted with brown, black, or yellow along the sides and back, or it may be entirely free from stripes or spots.

The castings of the earworm are coarse, wet, and foul, while those of the corn borer are more finely divided and usually dry.

The ear worm is widely distributed throughout the country, while the corn borer so far is confined to infested areas in Michigan, Indiana, Ohio, Pennsylvania, New York, and the New England states.

The differences here described in feeding habits, color, size, and castings of the two insects will enable farmers to distinguish the earworm from the borer.

It is important that all corn growers be on the lookout for the borer. Therefore, when any specimens of worms or caterpillars, or borers suspected of being the European corn borer are found they should be placed in a tight tin or glass container, together with a few strips of crumpled paper, and sent to the nearest corn borer laboratory for identification. Laboratories are located at 17 Division St., Silver Creek, N.Y.; at Sandusky, Ohio (address P. O. Box 976; at Monroe, Mich. (address 308 West Elm St.); at Toledo, Ohio (address 615 Front Street); and at 10 Court Street, Arlington, Mass.

The federal and state specialists receive many inquiries as to whether or not the corn borer attacks other plants.

In the Great Lakes area corn was practically the only plant that had been injured or infested to any extent up to the end of 1926. Some borers have been found in weeds in infested corn fields or at the margins of such fields. Very rarely has the corn borer been found in weeds growing at a distance from corn although extensive examinations have been made to determine this point.

In New England corn also is the favorite host of the corn borer, but in this section the pest commonly attacks other plants also. In fact, at the close of 1926, a total of 224 different species of New England plants were known to be infested by the borer. Many of these plants serve simply as shelter not as food for the borer. They are infested by the "over flow" of borers from nearby corn and other host plants.

More kinds of plants are infested in New England than in the middle west because New England borers develop two generations or broods each year while those of the middle west develop only one generation each year. The resulting heavier population of the borer in New England, and the fact that the second generation caterpillars find corn in a tough and unattractive condition may account for the large numbers of plant species attacked.

Another question frequently asked is just how successful the control measures have proved in infested areas.

The possibility of keeping the corn borer damage down by rigid clean-up measures was shown by the experience of farmers in Lucas county, Ohio, last spring. This county was the most heavily infested one in Ohio in 1926. Conditions there are favorable to the insect. Weather in the spring of 1927 was favorable to corn borer development, and adverse to best application of control practices, but in the face of these handicaps the farmers and federal authorities working together actually reduced the borer population.

Stubble fields were plowed so that no pieces of corn plant remained on the surface; old corn stalks were cut, raked, and burned; fields, barnyards, barns, and feed lots were cleaned of all the corn remnants from the 1926 crop. Most of the fields were cleaned by the farmers themselves. A few were cleaned by the federal authorities.

The result of this intensive campaign was that infestation decreased from 23 per cent to 15 per cent. In 1926, before the clean-up, each 100 stalks of the county harbored 70 borers; afterward, there were 42 borers per 100 stalks.

The clean-up work gives promise of slowing down the spread of the borer by reducing the number of moths which will fly next June to new territory. The other major part of the corn borer campaign ---the quarantine--- must be strictly observed in order to prevent long-distance spread. Western

people from uninfested regions visiting in the infested areas this year can help the campaign by observing the quarantine regulations. The quarantine works as follows:

During the green corn season, patrols are stationed on all the main travelled roads leading out of the infested area in order that no green corn may be carried out of the area. All vehicles are stopped by these patrols. In this way badly infested corn bound for Iowa, Florida, and other points has been intercepted. The shipment of all corn and other plants known to shelter corn borers out of or through the infested territory is also closely supervised by government inspectors. The border area and other points under suspicion are carefully scouted each year for any sign of the borer that the boundary of the infestation may be fixed as exactly as possible.

In summary---

Farmers in non-infested areas can help along the cooperative effort to keep the corn borer under control by informing themselves about the present status of the borer;

by keeping an eye out for caterpillars which have the distinctive corn borer appearance, and sending suspected caterpillars to corn borer laboratories for identification;

by strictly observing quarantine regulations if they happen to be in the infested areas this season.

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IF THE CORN BORER COMES
(Uninfested Corn Growing States)

Anytime, week of April 9.

(NOT FOR PUBLICATION)

ANNOUNCEMENT: Why doesn't someone find a short-cut to control of the corn borer? That question, which continually crops up, will be answered, for the present, at least, in today's contribution from the U. S. Department of Agriculture to the program of Station_____.

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Probably everyone interested enough in the problem of corn borer control to follow a series of radio talks about it knows that other threatening insect pests have been brought under control simply by setting insect "watch dogs"--parasites--upon them.

Farmers generally remember the spectacular success which entomologists scored in California some years ago. The scientists tackled the problem of controlling the fluted scale which threatened to wipe out the orange and lemon industry of California. The fluted scale came from Australia. There the ladybird beetle preyed upon the scale. Ladybird beetles were brought to Los Angeles and liberated upon orange trees there. Within a year the orange trees were in bloom, and within five years the fluted scale problem was a thing of the past.

Presto, change! Just like that.

Why not clean up the corn borer in the same way?

In reply, the scientists working at the problem of corn borer control assure us that they are trying to control the corn borer with parasites, but that parasites alone will not keep down the borers.

"Even with the best of success, judging from previous experience," they say, "it is not likely that important effects of parasites can be expected until several years hence. In the meantime, the practical and effective methods of corn borer control will continue to be feeding corn fodder to livestock, raking and burning, or completely plowing under all the previous year's cornstalks and crop remnants before June 1 of the following year.

The work which has so far been accomplished toward corn borer control by parasites sums up about as follows:

Three different kinds of native insects have been found to prey upon

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the borer in the Great Lakes area, and 18 native parasites of the borer are known in New England. BUT, all of these parasites together are able to kill an average of only 1 per cent of the borers.

In favorable years a certain wasp-like native insect destroys a considerable number of the corn borer eggs, but its activities vary so much from year to year that it can't be relied upon. Birds sometimes feed upon corn borers, but with the exception of somewhat local feeding by woodpeckers, birds are not known to have an important influence in reducing the number of corn borers in the United States.

Trying to repeat the success of the campaigns against the fluted scale, and the less complete triumph over the Gipsy and brown tail moths, the scientists have imported from the original sources of the corn borer--certain European countries--12 species of parasites.

Seven of these species in New England, and three in the Great Lakes area are now known to be preying on the borer. As the borer was first discovered in Massachusetts, the work has been going on longer there than in any other infested State. The first imported parasites came to Arlington, Mass., nearly eight years ago--in 1920. Before these insects were brought over to this country, they were studied in their European haunts to make sure that they would not harm plant growth. After reaching this country the parasites again were studied in the laboratories so that it would be absolutely certain that they would not themselves become plant scourges. Then they were liberated.

To the present, parasites have been liberated at favorable points in each of the five corn borer States in the Great Lakes area, also in New England, and at the site of an isolated corn borer infestation near Sherburnville, Ill. Altogether, 1,798,080 individual parasites have been sent out into the infested fields to attack the crop destroyer. The places at which the different species were sent into action were chosen with an eye to finding conditions as nearly as possible like those in the native habitats of the insects. Parasites have been liberated at Richmond, Monroe, and Erie, Michigan; at Bono, Sandusky, and Mentor, Ohio; Silver Creek, New York; Mill Creek, Pennsylvania; St. Joe, Indiana; and at eight places in Massachusetts.

Last season's report on this phase of the corn borer campaign showed that less than 1 per cent of the borers now are being killed by these parasites. The results, however, have been encouraging considering the length of time it takes to establish a parasite under new conditions.

Some other short cuts to corn borer control, besides the introduction of parasites have been tried. Probably every known method of controlling insects has ^{been} experimented with since 1918 when the borer was first discovered to be a menace to the corn crop.

Insecticides have so far failed because the borer insists on living inside the corn stalk and won't come out to be sprayed.

Moth traps--either light or bait--won't attract a sufficient number of the borers to bring about control.

Parasites, which have been studied and imported since 1920, are not yet a decisive factor, and apparently they won't be for some time to come.

We come back to the hard fact that the only known method of killing enough corn borers to keep down the insect's damage is attack upon it during its inactive, hibernating season, by mechanical means.

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IF THE CORN BORER COMES
(Uninfested Corn Growing States)

Anytime, week of April 16.

NOT FOR PUBLICATION

ANNOUNCEMENT: Now comes the weekly discussion of what it means to farming in this region IF THE CORN BORER COMES further westward. Today a couple of the thousands of dirt farmers who are carrying out the scientists' plans to check the advance of the insect will tell how they handled the job last year. The first is Bert J. Dorsey, a successful New York corn grower.

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"When orders came to clean up last spring I plowed my stubble under deep--at least nine inches, "Mr. Dorsey starts his story.

"Then I used a disk on the fields, which tended to drive the stubble down still further into the earth. I went easy on dragging the former corn lots so as not to unearth any of the buried stalks. A homely contrivance consisting of a dry-goods box attached to the drag by a piece of chain cut down the work of picking up stalk fragments after dragging. As I and my men dragged the fields we reached down, picked up every piece of stubble and stalk the drag had pulled up, and threw all of them into the box.

"After rolling the field, we combed it again for loose trash, but found little. In harvesting I took care to cut the stalks about two inches above the ground. As soon as the crop had been taken off the field I turned the cows loose in it. You'd be surprised what a lot of hungry cows can do to a stubble field, even if the stubble is cut right next to the ground.

"Last year there were borers in my fields. This year I haven't been able to find any. I'm going to duplicate the control methods of last year again this spring. Their success is encouraging," Mr. Dorsey declares.

Now let's put on the stand another man direct from the corn borer firing line.

He's Adolph Heyman of Quincy, Mich., who had to tackle adverse conditions for clean-up last year. But Mr. Heyman did the job--and believes it was work well spent.

Mr. Heyman had a 99-acre farm of heavy, rich, black-loam soil, with 26 acres in standing cornstalks to clean up. First he used a gang plow, but the weather was wet, and the soil stuck to the moldboards. Then he tried a 16-inch walking plow of another make. It also failed to do the work. The first of May was only a few days away, and it began to look as if Mr. Heyman couldn't get the clean-up done in time to comply with the Michigan regulations.

Then the weather turned for the better, and the soil dried out somewhat. For the third time, Mr. Heyman went into that field--and the third time proved to be the proverbial "charm." He turned out a splendid job of plowing, completely covering the stalks, and along with them the borers.

Mr. Dorsey and Mr. Heyman and their fellow farmers who carefully complied with the State regulations for clean-up last year and will again do so this Spring are the chief bulwark of the Corn Belt against further invasion by the destructive pest. Corn growers in the infested areas have found that they must help one another. Corn borer moths fly from field to field. Therefore, in order to keep control all fields and other possible harboring places of the borer must be swept clean of corn and other refuse which will shelter the caterpillars now stirring into activity after the winter's hibernation. Kill these caterpillars and no moths will fly in June to lay the eggs from which will come the 1928 borer army.

Compulsory clean-up regulations such as those under which Mr. Dorsey and Mr. Heyman worked are effective in the States of Michigan, Ohio, Indiana, Pennsylvania, New York, and Massachusetts. All states require that all cornstalks and parts be destroyed or treated before May 1 each spring. Methods of destruction or treating include raking, burning, plowing completely under, finely shredding or cutting, ensiling, or any other methods which remove all pieces of plant material which will harbor borers.

While the battle goes on in the infested states farmers in regions fortunate enough not yet to have been reached by the borer will do well to keep an eye out for signs of possible infestation. Briefly the claim stakes put up by homesteading borers are these:

First, a broken-over tassel caused by the borer tunneling in the stalk.

Second, large quantities of yellowish-white frass pushed out of the entrance hole of the corn borer on the stalk, and either suspended at or below the hole by the silken strands spun by the larva, or collected below in the axils of the leaf blades.

Corn growers interested in more detailed information about the corn borer may obtain Farmers' Bulletin No. 1548, "The European Corn Borer: Its Present Status and Methods of Control" by sending request to Station ____.



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IF THE CORN BORER COMES
(Noninfested Corn-Growing States)

Week of April 23

(NOT FOR PUBLICATION)

ANNOUNCEMENT: Our regular weekly discussion of how farming will be affected IF THE CORN BORER COMES to this region brings out today the facts about research work and its relation to control of the European corn borer -- a topic of vital interest to everybody in corn growing country. We have secured answers from U. S. Department of Agriculture specialists to pointed questions about this very important matter. Here's the first question:

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QUESTION: How long have American scientists been studying the European corn borer?

ANSWER: Since the discovery, in the summer of 1917, of the corn borer, in the vicinity of Boston, Massachusetts, scientists of this country have studied the insect and tried out methods of controlling it. As this undesirable alien has been found at points nearer the Corn Belt, efforts to find means of halting it have doubled and redoubled. Some of the milestones along the way of the borer's westward march are these; The discovery during the latter part of September, 1919, of an infestation on a farm in Erie county, New York; the findings, in August, 1920, of corn borers in Welland, Middlesex, and Elgin counties, Ontario, Canada; the definite knowledge, by the close of 1924, that the insect was present in practically all of the territory along the shores of Lake Erie, and a short distance inland.

QUESTION: Well, how do the Federal and State workers go about keeping down the corn borer?

ANSWER: The work is carried on in three divisions: First, scouting to locate unknown or newly infested areas, and to fix the boundaries of areas already known to be infested; Second, quarantine to keep products infested with the borer from being transported into clean territory; Third, clean-up work to reduce the numbers of the pest in badly infested areas, or to keep down infestations that are especially dangerous because of their locations or other characteristics.

QUESTION: What's the net result of the investigations into clean-up problems--what methods have been found effective in controlling the corn borer?

ANSWER: In a nutshell, here's the result: MECHANICAL METHODS OF KILLING THE BORERS IN CORN STALKS AFTER THE CORN HAS BEEN HARVESTED ARE THE MOST EFFECTIVE AT PRESENT. The borers can be destroyed by burning stalks and other plant material, by feeding to livestock, by shredding or ensiling, or by any other method which completely destroys remnants of last year's corn

crop. If all these remnants are destroyed before June 1, the borers overwintering in the stalks are killed. The June 1 date is important, because in June the borers change into moths which fly about laying the eggs that produce the current year's crop of borers.

QUESTION: The farmer's own ingenuity helps quite a bit in corn borer control, doesn't it?

ANSWER: Certainly the individual carrying on the control work has a chance to figure out the best methods of doing what has to be done. An instance of Yankee inventiveness finding the most practical way to keep down corn borers comes from Eden Valley, New York, a vegetable gardening district. There the growers use a common disk in control work.

After harvesting their corn and removing the stalks from the field, Eden valley growers work over the fields with a disk, chopping up and driving into the ground a good part of the stubble. Next they plant a fall crop of rye. The following spring they plow the rye under.

This plan, say the growers, buries the stubble beyond danger of its being uprooted, and also, through the plowing under of the green rye, adds humus to their land.

Eden Valley is in the heart of Erie County's worst infested area. Sweet corn, which is even more susceptible to corn borer damage than field corn, is grown there in great quantities. But the local farmers have found that their unique method of fitting their fields has got the corn borer pretty well under control.

QUESTION: It's good to know that ordinary farm machinery can be used in borer control. But tell me, what work have the research men done on special control machinery?

ANSWER: The State Experiment stations, the United States Department of Agriculture, and farm machinery manufacturers all have been trying to develop more practical and effective machinery. Several reliable home-made devices such as the stalk shaver, have been worked out. Directions for building this little machine can be obtained from the Ohio Extension Service at Columbus, or the European Corn Borer Control headquarters at Toledo, Ohio.

The low-cutting attachment for corn binders worked out last year makes it possible to leave stubble less than 2 inches high, which is satisfactory for corn borer control. The stubble beater, a light machine for pulverising stubble, drawn by a tractor, has been found practical for operation in smooth fields where the stubble is less than 10 inches high.

QUESTION: But are we always going to be obliged to follow these laborious methods of corn borer control? How about finding corn varieties which will

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resist borer attacks? Or quick-maturing varieties which can be planted late enough to escape corn borer damage?

ANSWER: No one can say exactly. Studies are now being carried on to determine the effect of time of planting on the corn borer, and efforts are being made to develop resistant and tolerant varieties of corn. But the results so far do not warrant widespread use of these methods of control.

QUESTION: Where are the studies being made?

ANSWER: The United States Department of Agriculture, in cooperation with the Ohio Experiment Station, is conducting work of this sort at Bono, Ohio; and, in cooperation with the Michigan Experiment Station, at Monroe, Michigan. Several other infested States, and some of the States bordering on the infested regions also are doing experimental work on these problems.

QUESTION: How long will research work be carried on -- is it necessary to continue the investigations?

ANSWER: Indeed research is necessary. It is the basis of all control methods. Until the corn borer is brought under adequate control, and is no longer a menace to the corn crop of the United States, the study of the corn borer and means of control must be kept up.

The best trained specialists in the country, State specialists as well as Federal specialists; entomologists, agricultural engineers, agronomists, and other agricultural scientists are employed in investigations of corn borer problems. They are studying, and will continue to study the life history, habits, and relation of the corn borer to environment; the breeding of varieties of corn adapted to borer conditions, the development of parasites of the borer, and the improvement of machinery for mechanical control.

ANNOUNCEMENT: This closes the eighth of Station _____'s weekly talks concerning the corn borer problems. The ninth and final talk will come next week at this period. It will review the results of the 1927 campaign, and give the most recent available information about the 1928 organized drive to control the borer.

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IF THE CORN-BORER COMES
(Uninfested Corn-Growing States)

Week of April 30

(NOT FOR PUBLICATION)

ANNOUNCEMENT: Today, as the 1928 corn-borer control program is going full tilt in fields and farmyards of the infested districts, Station _____ presents the ninth and last weekly radio review of the corn borer situation. In this final talk of the series, farmers and Federal and State corn borer control workers summarize what the 1927 clean-up accomplished, and outline the plans for this year's struggle with the menacing insect pest.

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Back in 1917 when the vanguard of 2,000,000 American soldiers was starting for warring Europe, it was discovered that an army of European insects, corn borers, had obtained a foothold in America and was conducting a guerilla warfare upon the growers of our most important crop--corn.

The soldiers--except the hero dead and disabled--returned from the war to the fields and factories of the Nation. Farmers grappled with the job of after-war reconstruction. Meanwhile the corn borers were found at points further and further to the westward; toward the rich lands of the Corn Belt. Scientists observed these discoveries and looked for means of controlling the insect.

Suddenly, or so it seemed to all except the men who had anxiously watched the spread of the insect, it was realized that there was a corn borer problem. The pest overran fertile corn land in southern Ontario, Canada. In 1924 it caused a total failure on 10 square miles of two Canadian counties; in 1925, on 400 square miles; and in 1926, on 1200 square miles. Though the borer has been in the U. S. an equal length of time there has been little or no damage and this has been confined to a few farms bordering Lake Erie.

But aroused at the threat, farm leaders swung into action. Plans were formulated for stopping the insect advance. Fortunately, 9 years of experimental work had shown what control measures held promise of some success. The research findings were that concerted, community-wide clean-ups in all infested regions were the only workable control measures. So Congress appropriated funds to pay farmers for their extra labor in cleaning up their corn fields and to cover the expense of clearing fields not taken care of by farmers.

By means of an educational campaign, farmers were informed of the clean-up regulations and told how to meet the inspection requirements. If their work passed the inspectors, farmers were paid up to a maximum of two dollars per acre for the extra labor of cleaning up. More than four and a

quarter millions of dollars were paid to farmers as extra labor fees. After May 16, government crews entered the fields not cleaned up by farmers and completed the work.

Each farmer, in order to enable his place to pass inspection, was required to destroy all corn stalks or other corn remnants of the 1926 crop in the field, the barnyard, or elsewhere about the farm. The destruction could be accomplished by burning, plowing under, or finely shredding the pieces of the corn plant. Stubble had to be plowed under or destroyed.

How complete was this clean-up; how large a percentage of the borers were killed by these methods? These are questions which naturally arise as we review the history of the 1927 borer drive.

The regulations required all farmers in townships infested with the borers in the clean-up area to follow out instructions for destroying pieces of the corn plant. With the methods used a very nearly complete clean-up was secured throughout most of the area. That answers the first part of our question.

Now about percentage of borers killed by clean-up: Where the infestation was sufficiently large to make a count of borers, the entomologists estimate that some 98 per cent of the borers were destroyed by the clean-up. This figure varies, of course, in different areas under observation.

But that doesn't mean that in 1927 there were 96 to 98 per cent fewer borers than in 1926. Far from it. Because of the high rate of increase of the insect, destruction of, say, 96 per cent of the borers will do no more than limit the increase, it is calculated, so that the next year there will be 6 borers in place of each 5 of the preceding year.

Here's the way it figures out:

Begin with a destruction, by the clean-up, of 96 per cent of the borers. Then there would still be at large 4 out of each 100 borers from last year's brood. Of these 4 borers, 2 will normally be females. These 2 females will lay, on the average, 400 eggs each--or 800 eggs for both of them. Destruction of eggs, and death of the young borers will leave only about 120--or 15 per cent--of the entire possible number of 800 to become established as corn destroyers. If these 120 come through the dangers that, fortunately, beset borers, the rate of increase will be one and one-fifth borers for each one of the preceding year.

But put that up against the possible increase of 30 borers to each one of the previous year which scientists calculate could have been in 1927 had there been no clean-up, or with the actual increase of five to one which occurred in 1926 when there was no general clean-up, and it will be seen that the hard labor of disposing of corn remnants shows results in corn borer control.

Another way of finding out what the clean-up has done is to examine the experience of farmers who did the work. Here are a couple of corn-borer "True Stories" from infested regions which tell, from the individual farmer's standpoint, the results of the 1927 campaign:

Carl J. Ackerman, a farmer near Toledo, Ohio, says that in 1926 his 10 acres of sweet corn was an almost total loss, and that his 20 acres of field corn were badly damaged. In 1927, after the clean-up, he found that the infestation was much less and the damage was slight. He is making another thorough clean-up this year.

B. S. Knapp of Monroe, Michigan, has had corn borers in his fields for five years. He says that he followed thorough clean-up practices each year of the five, but that his labor was largely lost because other fields in the neighborhood were not cleaned up. The borers seemed to increase in numbers and more damage was done each year--- until 1927. Last year, with complete community-wide clean-up, Mr. Knapp's loss seemed to be cut about in half. Naturally, he is cleaning up his farm again this year and urges his neighbors to do likewise.

In the light of the experience of 1927, it is concluded that the corn borer can be controlled by mechanical means. Therefore, the United States Department of Agriculture plans to continue this year educational work to bring to every farmer in the corn-borer infested area knowledge of these methods by which the borer can be kept down economically and practically.

Meanwhile, Federal and State scientists are trying to find other methods of control which will supplement low-cutting, ensiling, shredding, feeding, burning, and plowing.

Scouting continues in an effort to determine in so far as possible just how far the borer has advanced so that control work may be made most effective.

Strict quarantine is being enforced to prevent the spread of the borer by artificial means. States desiring to enforce a clean-up without compensation have the cooperation of the Federal Department.

That's the organization side of the corn-borer plans for this year. Upon the shoulders of farmers themselves falls the most important duty--that of carrying out the control measures. Each farm presents a special clean-up problem which calls for knowledge of the situation and ingenuity and resource on the part of the farmer. In order to get a permanent record of present knowledge about combatting the borer, write for Farmers' Bulletin No. 1-5-6-2, "Farmer Practices Under Corn Borer Conditions," and Farmers' Bulletin No. 1-5-4-8, "The European Corn Borer, Its Present Status and Methods of Control."

ANNOUNCEMENT: And that ends Station _____'s ninth and final weekly corn borer chat, prepared for our listeners by the United States Department of Agriculture. Should any listener wish to get the Farmers' Bulletins just mentioned in order to have some handy references on corn borer control, write us. The numbers of the bulletins are 1-5-6-2 and 1-5-4-8.

